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Annual ministerial review: implementing the internationally agreed goals and commitments in regard to sustainable development

Report of the Secretary-General

Summary

The three pillars of sustainable development — integrating economic growth, social development and protection of the environment — have generally been adopted in principle but often not in practice. Some approaches offer benefits in all three areas, but there are often costs and trade-offs involved. Striking an optimal balance among the three areas remains a central challenge of sustainable development.

While some progress has been achieved in building the economic and social pillars of sustainable development, greater efforts are still required. The long-term sustainability issues of climate change, deforestation, biodiversity and marine resources, whose situation is deteriorating, are in particular need of attention.

There is an urgent need to effectively implement the global consensus on sustainable development, particularly Agenda 21, the Johannesburg Plan of Implementation and Millennium Development Goal 7. To that end, the present report makes recommendations in a number of areas, including strengthening governance, creating markets for sustainable development, strengthening global cooperation, increasing financial assistance and promoting transfer of technology.

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I. Introduction

1. The concept of sustainable development, which integrates the three pillars of economic growth, social development and protection of the environment, includes a long-term perspective to ensure the well-being of future as well as present generations. It is also participatory, to reflect the perspectives of all parts of society. It was at the core of the United Nations Conference on Environment and Development, held in 1992 in Rio de Janeiro, and has subsequently been reaffirmed in the United Nations Millennium Declaration, the 2002 Johannesburg Plan of Implementation, and other international agreements. All countries have committed themselves to the principles of sustainable development.

2. Largely owing to strong global economic growth in recent years, particularly in developing countries, there has been progress in many countries in reducing poverty and developing policies that integrate economic growth, social equity and environmental protection. Awareness and public support for sustainable development are greater than ever before. We have today a financial, technological and policy basis for stronger commitments to realizing sustainable development in practice as well as in principle. Yet implementation of those commitments has been weak and slow.

3. Recent years have seen substantial increases in the prices of natural resources, including food, oil and metals, due in part to increasing demand in rapidly growing developing economies, and in part to policies in developed countries, such as promotion of biofuels. Those trends have impacted on development plans and prospects in many developing countries. In all countries, commodity price instability will complicate and make the planning and policymaking processes more unpredictable. Policymakers in developed and developing countries are faced with the challenge of safeguarding robust economic development amidst serious risks of global recession. For developing countries, maintaining strong economic growth, while not the only condition, is essential to supporting their endeavours and generating the necessary resources to achieve the Millennium Development Goals. For the advanced countries, too, continued expansion of economic activity is essential for tackling long-term challenges such as those posed by an ageing population, and new investments are needed to address the challenge of climate change. The current global financial instability and the expected impacts on economic growth will make the process of moving towards sustainable development even more challenging.

4. Such trends underline the need to conserve natural resources, to use resources more efficiently, to shift to less resource-intensive lifestyles, particularly in the developed countries, and to improve agricultural productivity, particularly in developing countries with food deficits.

II. Progress in sustainable development

5. Progress towards the internationally agreed development goals, including the Millennium Development Goals, has been mixed. Detailed information on progress towards the goals is contained in the annual report of the Secretary-General on the work of the Organization (A/62/1), which contains a section on the Millennium Development Goals. In addition, there has been little substantive progress in

addressing the long-term issues of environmental sustainability (for a review of progress focusing on sustainable development goals, see, for example, E/CN.17/2008/2).

6. With respect to poverty (Goal 1), the proportion of people in the developing world living in extreme poverty is estimated to be 19 per cent (2004) (see table 1), down from 29 per cent in 1990. With current trends, the poverty rate is projected to decline further to 12 per cent by 2015, in which case the target of halving the poverty rate would be surpassed. Poverty reductions have been achieved largely through broad-based economic growth (see table 1), but also through anti-poverty policies. However, in sub-Saharan Africa, most countries are not on track to meet the target (see table 2).

Table 1
Selected indicators of progress in developing countries, 2000-2007

	1999	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*[a]
Economic growth[b]									
Growth of output (percentage per year)		5.6	2.7	3.9	5.2	6.9	6.5	6.9	6.9
Poverty (millions)									
Proportion of population (per cent)		22.3		19.4		19.2			
Employment (millions)									
Female		787	800	816	834	847	862	878	
Male		1 255	1 276	1 299	1 325	1 347	1 371	1 394	
Primary and secondary education (per cent)									
Net enrolment ratio									
Female	79.9						85.7		
Male		86.8[c]					89.9		

Source: *World Economic Situation and Prospects 2008*, table I.1 (United Nations publication, Sales No. E.08.II.C.2); *Millennium Development Goals Report 2007* (http://mdgs.un.org/unsd/mdg/Resources/Static/Data/Stat%20Annex.pdf).

[a] Partly estimated.

[b] Calculated as a weighted average of individual country growth rates of GDP, where weights are based on GDP in 2000 prices and exchange rates.

[c] High-income economies, as defined by the World Bank, are excluded.

7. There has been notable progress towards universal primary education (Goal 3), particularly in sub-Saharan Africa, but for poor rural children in Africa and south Asia, access to education remains limited. Child mortality (Goal 4) has also declined in all regions, with good progress towards the goal of two-thirds reduction in Asia, Latin America and the Caribbean, and North Africa. In sub-Saharan Africa, progress in reducing child mortality has been very slow.

8. There has also been progress in reducing HIV/AIDS mortality and the number of new cases each year, as well as in reducing malaria through new anti-malarial drugs and bednets (Goal 6).

9. The number of people with access to improved drinking water in developing countries has increased from 71 per cent of the population in 1990 to 80 per cent in 2004, on track to meet the global goal of reducing the proportion of those without coverage by half by 2015 (Goal 7). However, greater efforts are required in sub-Saharan Africa, where coverage has increased from 49 per cent to 56 per cent during the same period, far below the rate needed to meet the target. Progress towards the goal of reducing by half the proportion of people in developing countries without access to adequate sanitation has been somewhat slower, with coverage increasing from 35 per cent in 1990 to 50 per cent in 2004.

Table 2
Population living below $1 purchasing power parity (PPP) per day

	Percentage of population below $1 PPP per day[a,b]		
	1990	*1999*	*2004*
Developing regions	31.6	23.4	19.2
Northern Africa	2.6	2.0	1.4
Sub-Saharan Africa	46.8	45.9	41.1
Latin America and the Caribbean	10.3	9.6	8.7
East Asia	33.0	17.8	9.9
South Asia	41.1	33.4	29.5
South-East Asia	20.8	8.9	6.8
Western Asia	1.6	2.5	3.8

Source: *Millennium Development Goals Report 2007* (http://mdgs.un.org/unsd/mdg/Resources/Static/Data/Stat%20Annex.pdf).

[a] High-income economies, as defined by the World Bank, are excluded.

[b] Estimates by the World Bank, April 2007.

10. In recent years, concerns over climate change have grown, energy prices have increased, and alternative energy technologies have become more viable. However, global greenhouse gas emissions continue to rise, and few countries have achieved significant reductions in accordance with Kyoto commitments. Rapid growth in the production of ethanol and biodiesel has contributed to higher food prices, forest clearing for agriculture, and other negative impacts, without leading to substantial reduction in overall greenhouse gas emissions.

11. At the same time, there are about 1.5 billion people in developing countries without access to electricity and 2.5 billion people who are dependent on traditional biomass fuels for cooking and heating, severely limiting the development possibilities for those people.

Table 3
Indicators to ensure environmental sustainability (Millennium Development Goal 7)

	Land area covered by forests		*Protected area ratio to total terrestrial and sea area*			*Carbon dioxide per capita emissions*[b]		*Ozone-depleting substances consumption*		*Population using an improved drinking water source*		*Urban population living in slums*[c]		*Population using an improved sanitation facility*	
	(percentage)					*(tons)*				*(percentage)*					
	2000	*2005*	*2000*	*2006*	*Total*[a]	*1990*	*2004*	*2000*	*2005*	*1990*	*2004*	*2001*	*2005*	*1990*	*2004*
North Africa	1.5	1.5	3.4	3.8	4.1	1.9	3.2	10 826	5 294	89	91	28.2	14.5	65	77
Sub-Saharan Africa	27.3	26.5	9.1	9.4	12.9	0.9	0.9	9 512	2 958	49	56	71.9	62.2	32	37
Latin America and the Caribbean	47.2	46	13.3	14.5	21.2	2.5	2.6	31 087	14 488	83	91	31.9	27	68	77
East Asia	18.1	19.8	10.2	11.2	16.5	2.4	4	105 762	36 663	71	78	36.4	36.5	24	45
South Asia	14.3	14.2	5.4	5.7	5.9	0.8	1.3	28 161	7 971	72	85	59	42.9	20	38
South-East Asia	49.9	46.8	7.1	7.9	11	1.1	2	16 809	7 685	76	82	28	27.5	49	67
Western Asia	3.4	3.5	18.1	18.2	18.3	4.9	6.1	11 855	5 070	85	91	25.7	24	81	84
Oceania	65	63.4	1.2	1.3	3.7	0.9	0.9	129	27	51	51	24.1	24.1	54	53
Developing regions			9.7	10.4	14.4	1.7	2.4	212 516	79 365	71	80	42.7	36.5	35	50
Developed regions	30.7	30.8	12.3	13.8	15.1	10.3	12.4	24 056	10 352	100	99			100	100
World	**30.6**	**30.3**	**8.7**	**9.4**	**11.6**	**4.3**	**4.5**			**78**	**83**			**49**	**59**

Source: The Millennium Development Goals Report 2007 (http://mdgs.un.org/unsd/mdg/Resources/Static/Data/Stat%20Annex.pdf).

[a] Includes designated protected areas with unknown year of establishment up to and including year 2006.

[b] Total carbon dioxide emissions from fossil fuels (expressed in millions of tons of carbon dioxide) includes carbon dioxide emissions from: solid fuel consumption, liquid fuel consumption, gas fuel consumption; cement production; and gas flaring (Carbon Dioxide Information Analysis Center).

[c] Represented by the urban population living in households with at least one of the four following characteristics: lack of access to improved drinking water, lack of access to improved sanitation, overcrowding (three or more persons per room) and dwellings made of non-durable material.

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Table 3 (*continued*)

Indicator	*Europe*		*North America*	
	2000	**2005**	**2000**	**2005**
Rate of forest harvest (percentage of total forest volume)	0.9	1.0	0.7	0.7
	2000	**2006**	**2000**	**2006**
Protected areas (percentage of total territorial area)[d]	7.28	7.29	13.77	13.88
	2000	**2005**	**2000**	**2005**
CO_2 emissions from energy use (millions of tons)	3 842	3 976	5 071[e]	5 817[f]

Source: UNEP, GEO4 data portal (http://geodata.grid.unep.ch/results.php); OECD, *Factbook 2008: Economic, Environmental and Social Statistics*.

[d] Terrestrial and marine combined, IUCN categories I-VI.

[e] United States.

[f] United States.

Table 4
Indicators of the Global Partnership, 2000-2007

	2000	2001	2002	2003	2004	2005	2006	2007
Financial flows (billions of dollars)								
Net ODA from DAC member countries to all developing countries								
Bilateral development projects, programmes and technical cooperation	32.1	31.1	33.4	38.4	44.8	52.2	48.9	
Humanitarian aid	2.2	1.9	2.8	4.4	5.2	7.2	7.8	
Net debt relief grants	1.8	2.1	4.6	7.0	4.3	22.7	19.2	
Contributions to multilateral organizations	17.7	17.3	17.5	19.3	25.1	24.6	28.1	
Total Official Development Assistance (current prices)	53.7	52.4	58.3	69.1	79.4	106.8	104.4	103.7
Memo item: Total Official Development Assistance (2005 prices)	68.0	69.4	74.1	77.0	81.1	106.8	101.3	
Net grants by non-governmental organizations	6.9	7.3	8.8	10.2	11.3	14.7	..	
Other flows								
Net financial flows from multilateral development banks	9.2	9.1	1.2	0.7	3.0	4.4	..	
Expenditures on operational activities of the United Nations system	6.8	7.4	7.6	10.0	10.3	12.6	..	
Foreign direct investment	165.9	169.1	155.7	158.6	216.8	280.8	325.0	
Private sector loans and portfolio investment	20.5	-6.6	12.1	113.7	194.9	270.5	318.0	
Workers' remittances	85.6	96.5	113.4	142.1	160.4	188.0	200.0	
Net transfer of financial resources	-185.7	-154.8	-204.9	-297.9	-368.2	-560.0	-728.1	-759.8
Debt service as a proportion of exports (percentage)								
Heavily indebted poor countries	16.6	12.6	12.7	11.5	11.9	9.7	6.4	5
Developing countries excluding heavily indebted poor countries	12.6	11.5	11.5	11.1	8.1	7.4	..	
Indices of primary commodity prices (2005=100 in US dollars)								
Food	82.1	80.5	83.3	88.6	100.9	100.0	110.5	127.3
Metals	62.7	56.3	54.3	60.7	81.7	100.0	156.2	183.3
Petroleum	52.9	45.6	46.8	54.2	70.8	100.0	120.5	133.3
Tariff barriers of developed countries (percentage)								
Proportion of non-oil, non-arms imports admitted duty-free to developed countries	65	64	68	70	75	75	..	

	2000	2001	2002	2003	2004	2005	2006	2007
Developed countries average tariffs on imports from developing countries								
Agricultural goods	9.4	9.3	9.5	9.4	9.2	8.9	..	
Textiles	6.6	6.6	6	5.8	5.2	5.3	..	
Clothing	10.8	11.3	10.7	10.4	9.2	8.9	..	

Sources: Database on aid from members of the Development Assistance Committee (see www.oecd.org); World Bank, *World Development Indicators 2007* (World Bank, Washington D.C., 2007); (A/62/74–E/2007/54); World Bank, *Global Monitoring Report 2007* (World Bank, Washington D.C., 2007); UNCTAD, *Monthly Commodity Price Bulletin*, various issues; *Millennium Development Goals Report 2007* (see http://mdgs.un.org/unsd/mdg/Resources/ Static/Data/ Stat%20Annex.pdf); International Development Association and International Monetary Fund, Heavily Indebted Poor Countries Initiative and Multilateral Debt Relief Initiative — Status of Implementation, August 2007 (http://www.imf.org/external/np/pp/2007/eng/082807.pdf); *World Economic Situation and Prospects 2008* (table III.1); and International Monetary Fund indices of primary commodity prices, (http://www.imf.org/external/np/res/commod/index.asp).

12. The world population is projected to increase to about 9 billion by 2050, and almost all of the increase will be in the cities of the developing world. With current trends, there will be two billion people living in urban slums by 2030, as compared to one billion people now. Hence, improving the lives of slum dwellers (Goal 7) is one of the most challenging goals. Few developing-country Governments can afford the massive investments necessary to upgrade slum housing and infrastructure. In general, therefore, there is a need to support and assist slum dwellers in improving their housing, their livelihoods and their conditions. Where slums are located in dangerous or unsuitable locations, arrangements are needed to move the residents elsewhere. Providing access to affordable and safe drinking water, sanitation, electricity, transportation and communications for slum dwellers is also essential.

13. Feeding 9 billion people in 2050 without destroying forests and biodiversity is a growing challenge. About 800 million people who are now undernourished will need more and better food, and as income increases, the consumption of meat, dairy products and fish will increase, all of which increase demand for land and energy. As a result of the growing demand, higher food prices are causing hardship for low-income families, and pressure to clear forests to expand cropland is increasing. The challenge is further complicated by the fact that climate change is projected to reduce crop yields in the tropics and subtropics. While consumption and production have become more resource- and energy-efficient over the years, improvements in efficiency have been more than offset by increases in the volume of consumption. Consumers, with increasing incomes, have been buying larger houses, with more heating and air conditioning, more and larger appliances, larger and more powerful cars, and more consumer goods in general, and they have been travelling more. High-income consumers, mostly in the developed countries, are continuing to set lifestyle and consumption standards that are increasingly unsustainable. The earth cannot support 9 billion people with consumption and production patterns like those prevalent in developed countries. The challenge is to move towards consumption and production patterns that can provide everyone with a good standard of living with greatly reduced use of fossil fuels, less depletion and degradation of natural resources and a clean, healthy environment.

14. Inequality remains a major problem and an obstacle to sustainable development in almost all countries. In some countries, there have been substantial increases in inequality in recent decades. Unemployment, underemployment and poor working conditions are pervasive in most developing countries. Discrimination and social exclusion based on race, sex, ethnicity, religion, language and other factors exist in almost all countries, in some cases threatening social stability. Some of those issues are not adequately recognized in current international development goals and targets such as the Millennium Development Goals. However, they form an essential part of the United Nations development agenda and should be pursued in tandem with Millennium Development Goals.

15. In some countries, violent civil conflict has caused serious setbacks to sustainable development, with increases in poverty, hunger and disease, economic decline, destruction of natural resources and infrastructure, and declines in health care, education and other social services, as well as deaths and injuries from the conflict. In many cases, natural resources have helped drive conflicts. International efforts to promote sustainable development in all countries can help reduce the likelihood of conflict, and peacebuilding in war-torn countries can help re-establish effective governance and sustainable development.

III. Policymaking for sustainable development

A. Policy integration

16. Integration of the three pillars of sustainable development into national planning and policymaking is a difficult process. Governments divide their functions into different ministries and agencies, and those ministries and agencies inevitably function with a substantial degree of independence, each pursuing its specific objectives with its specific expertise.

17. An essential step in integrating sustainable development objectives and policies has been the creation of environmental ministries and agencies in almost all countries since the first United Nations environment conference in 1972, and in many other countries since the holding of the United Nations Conference on Environment and Development in 1992, to complement the existing ministries concerned with economic development, industrialization and social issues. That has been accompanied by the elaboration of national environmental legislation and regulation in all countries, and the elaboration and ratification of a growing number of international environmental agreements. That governmental and intergovernmental action has been complemented, and to some extent driven, by the proliferation of civil society organizations concerned with sustainable development at the national and international levels, and by the introduction of sustainability issues into educational curricula. In many developing countries, however, progress has been limited by the lack of financial, technical and administrative resources for monitoring and enforcing compliance with regulations.

18. If different ministries or agencies end up working at cross purposes, development will be hindered and public resources will be wasted. Objectives of economic growth and industrialization, poverty reduction and social equity, and environmental protection are quite likely to compete, at least in part, if there is no mechanism for reconciling them. In some cases, competing objectives may be foreseen in advance and reconciled in a forward-looking integrated strategy, but in many cases, trade-offs will emerge and will need to be addressed through a continuing coordinating mechanism.

19. There are a variety of mechanisms for policy integration. First and foremost, the highest levels of Government, with consultations among ministers and other senior officials, set the overall policy framework and reconcile conflicts among agencies. To provide a framework of general development objectives and priorities to guide the work of ministries and avoid inconsistent policies to the extent possible, many countries have development plans elaborated through consultations among agencies, and in some cases with participation of non-governmental organizations or other groups.

20. With the recognition in the 1990s that traditional development strategies and policy coordination mechanisms had not adequately taken account of the importance of social development, resource conservation and environmental protection as essential elements of long-term development, international efforts have been made to assist countries in preparing integrated development plans combining economic, social and environmental objectives. In 1992, Agenda 21 called on all countries to develop national sustainable development strategies and national Agenda 21s. In

2002, at the Johannesburg Summit, it was agreed that all countries should prepare national sustainable development strategies by 2005.

21. The United Nations has defined a national sustainable development strategy broadly as an interactive and iterative process of planning, participation and action, in which the emphasis is on managing progress towards sustainability goals. It is intended to institutionalize processes for consultation, negotiation, mediation and consensus-building on priority issues where interests may differ. In Costa Rica, for example, an annual state of the nation report for sustainable human development is prepared under a steering committee consisting of representatives of Government and civil society, with international support, in order to monitor progress towards sustainable development.

22. Over 70 countries have elaborated and are implementing national sustainable development strategies including economic, social and environmental objectives and policies. In some countries, all three aspects are covered by the overall national strategic plan, while in other countries there are specific sustainable development strategies or plans or national Agenda 21s. In some countries, all aspects of development are covered in the poverty reduction strategy.

Box 1
South Africa's sustainable development strategy

Following the end of apartheid in 1994, South Africa established sustainable development as a constitutional right in the 1996 constitution. In 2004, a community outreach and stakeholder participation process was organized, leading to a framework for a national sustainable development strategy, which was approved by the cabinet in 2005, with the first draft of the strategy itself published in April 2006. Based on the strategy, a detailed action plan is to be developed, as are provincial strategies for sustainable development. Particular areas of action as part of the strategy include the South African Cities Network, improving access to affordable energy services, increasing energy efficiency, development of a national strategy for the Kyoto Clean Development Mechanism, development of a national biodiversity strategy and action plan, and technology development, including development of nanotechnology for health applications. The private sector is being engaged, particularly with respect to climate change, poverty reduction and black economic empowerment.

23. Countries receiving assistance from the World Bank and International Monetary Fund, including debt relief under the Heavily Indebted Poor Country Initiative, have been required, since 2000, to prepare Poverty Reduction Strategy Papers. While the focus on poverty, participation and a long-term perspective in Poverty Reduction Strategy Papers correspond to some important aspects of sustainable development, the papers often do not include resource conservation and environmental protection, although the World Bank has been promoting the inclusion of environmental issues into Poverty Reduction Strategy Papers, particularly as they relate to poverty.

24. Using another approach to integrating sustainability objectives into economic decision-making in both the public and private sectors, several countries have introduced or raised taxes or charges on fossil fuel consumption, pollution or waste disposal, often with the revenues used to reduce taxes on employment or subsidize energy efficiency or renewable energy. Many European countries have done that under the concept of green tax reform. A number of developing countries have introduced pollution taxes or charges on industries with high environmental impacts. Such internalization of the environmental and social costs of less sustainable activities can help integrate environmental and social factors into economic decision-making through market forces, without complex policy negotiation, regulation and enforcement processes.

25. Integrating economic, social and environmental objectives can also be supported by appropriate indicators and statistics used both to define development objectives and to monitor progress. There is a need to strengthen indicators and compile data sets that integrate two or three dimensions of sustainable development, such as the health costs of air pollution, the economic value of watershed protection and biodiversity, and the social value of natural ecosystems. More complex indexes combining a number of variables, such as the United Nations Development Programme Human Development Index, stocks of natural, human and social capital, the genuine savings index, and green Gross Domestic Product can also be valuable in monitoring trends in human well-being and identifying unsustainable trends that may provide short-term benefits at the cost of long-term economic, social and environmental capital.

B. Governance and participation

26. Government leadership, integrated strategic planning and effective regulation and enforcement are critical to sustainable development. In many countries, goods and services central to sustainable development, notably energy and water supply are provided by public agencies. Other resources, such as forests and minerals, may be Government-owned while developed by industry under Government regulation. Promoting sustainable development therefore requires strengthening the administrative capacity of Government and public sector services.

27. Participation of civil society, local authorities, the private sector and the general public is also critical to sustainable development planning and implementation. Many activities or decisions that are critical to sustainable development, such as private investment, employment, or consumer choices, may be influenced by national Government policies, but are largely determined by other actors and sometimes by individuals. Municipal and other local authorities have often taken the lead in addressing sustainable development issues, developing and demonstrating policy solutions which may later be taken up by central Governments.

28. In addressing some sustainable development issues, Governments may prefer to avoid regulation and enforcement and instead rely on voluntary action by business, consumers or others. While experience generally indicates that voluntary programmes have rather limited effects, they may be useful in introducing ideas for action that can later be developed into mandatory regulations. When regulatory measures are introduced, measures to encourage public compliance may be a useful

complement to legal enforcement, which is sometimes unpopular. Governments can work with business associations, non-governmental organizations, the media, and educational institutions to define cost-effective sustainable development programmes and promote public support and voluntary action.

29. Among the Millennium Development Goals, improved sanitation, in particular, requires broad participation. In rural areas, where the problem is greatest, sanitation generally cannot be provided through a centralized, top-down approach by the national Government. Furthermore, Government responsibility for sanitation is often divided across ministries responsible for water, health and rural development, with no clear lead ministry. Rural and peri-urban sanitation requires construction and maintenance of facilities by households and regular hygiene practices by everyone. Nonetheless, a high-profile national sanitation campaign with active support from a number of agencies can provide an essential stimulus for mobilizing households and changing behaviour. The community-led total sanitation approach used in Bangladesh, India and Pakistan, with support from the United Nations Children's Fund, has proven effective. The Government, in cooperation with communities and non-governmental organizations, educates people to stimulate demand for sanitation services, provides information on technological options, and supports community financing mechanisms. It is then up to each household to choose and build the facilities appropriate to its needs.

30. Women have a particularly important role in moving towards sustainable development, in part due to their predominant role in childcare, food preparation and maintaining family health. There is evidence that in many societies women are more likely than men to use family income for nutrition, health care, education and other family poverty-reduction purposes. A number of countries, including Brazil, Chile and Mexico, have established programmes providing cash benefits to low-income families, through the mother, on condition of school attendance, periodic health check-ups and education in health and nutrition. In Mexico, the *Oportunidades* programme, after a successful pilot phase, has been expanded to provide assistance to most low-income rural families in the country, and has increased school enrolment and reduced poverty and child illnesses. The *Bolsa Familia* programme in Brazil and the *Chile Solidario* programme, similar in design, have also proven effective in reducing poverty and inequality. In another approach, Mali has used rural school lunch programmes to increase school attendance and improve nutrition of children in low-income families.

31. Community organizations, with support from national Governments and sustainable development organizations, can be major players in promoting sustainable land use in rural areas. In semi-arid Rajasthan in northwest India, villages have been organized to manage water resources and land use in ways that dramatically increase agricultural productivity. Re-establishing traditional rainwater harvesting techniques and rebuilding water-conservation structures, such as embankments, reservoirs, underground water tanks, groundwater recharge reservoirs and irrigation canals have turned barren degraded land into productive fields and pastures through collective efforts. Similar programmes include a rural advancement and construction programme in Bangladesh, a rural programme support network in Pakistan, and a population and community development action programme in Thailand. Successful programmes have had strong community organization and leadership and were supported by Government policies and technical and financial support. Effective community efforts have often built on traditional social systems.

In some areas, Governments, in cooperation with community organizations, have supported public works projects using local labour paid the minimum wage as an anti-poverty measure that also improves infrastructure, including roads and water and soil conservation structures.

32. Community forestry, with the support of Government forestry agencies, and often building on traditional forest management systems and cultures, has been effective in a number of Asian countries in protecting forests while improving livelihoods for local communities, including indigenous communities. Government policy support is essential for such programmes, as the community must have legal access to the forest and rights to manage it and harvest forest products, rights which are often controlled by the national Government. The communities can also protect the forests from illegal logging and clearing, providing essential support to Government forest agencies that lack adequate means to enforce forest protection law. Cambodia, India, Nepal and the Philippines, for example, have passed laws that allocate forest use rights and management authority over particular forest areas to particular villages. International assistance has provided financial and technical support and training for such programmes. Forest products, as well as small-scale sustainable agriculture and sustainably harvested wood for building materials, provide livelihoods for the community.

33. Local water user associations, working with and supported by Government irrigation and water management agencies, can provide a cost-effective means for distributing irrigation water efficiently and equitably and maintaining the systems. Government agencies can support such arrangements by ensuring the water supply for the system, assisting with organizing and training and providing access to credit for improving the irrigation infrastructure. In some countries in Asia, the association members do most of the work themselves, particularly in communities with traditions of such cooperation. In Latin America, farmers' associations commonly hire professional staff to do the technical management, while the association makes decisions concerning distribution, fees, maintenance and arrangements with Government agencies.

34. Because large cities are centres of population, industry, wealth and consumption, they experience greater environmental and social stress than do less populated areas. However, they are also centres of education, research and organized civil society and often take the lead in addressing issues of sustainability. Many cities in both developed and developing countries are developing and demonstrating innovative approaches to problems of sustainable development ahead of their national Governments, with Curitiba, Brazil, as a pioneer in the 1970s. As cities often face common problems different from those of rural areas and small towns, municipal authorities have formed international networks for exchange of experience, such as the Local Governments for Sustainability and the African Sustainable Cities Network. Those efforts can be supported by national Governments and can inform national policymaking. Successful programmes and policies can be publicized and replicated in other cities. Much of the action required to ensure sustainable consumption and production, including conservation of energy and water, must be undertaken by individual consumers and households, with encouragement and incentives from Governments. It is generally very cost-effective to reduce household energy consumption by limiting space heating and cooling, insulating walls and windows, installing energy-efficient lighting and appliances, reducing automobile use and undertaking a variety of other energy conserving

behaviour. While Governments can set standards for housing construction and for energy efficiency of appliances and vehicles, they cannot police household behaviour, which largely determines household energy consumption. However, Governments can work with power utilities, environmental organizations, community organizations, and the media to try to influence consumer behaviour through such mechanisms as peak-load pricing, prices that increase with the volume of consumption, incentives for efficient appliances and information on practices that save both money and energy. Governments can also promote access to energy- and resource-efficient goods and services and set an example through their own consumption of goods and services.

C. Creating markets for sustainable development

35. The sustainable development perspective emphasizes that natural ecosystems are not simply areas to be protected for their inherent value and long-term sustainability, but also that they provide valuable economic and social services. Forests and wetlands, for example, absorb heavy rainfall to prevent flooding and filter water to reduce sediment and pollution and protect water quality downstream, and they also preserve biodiversity. However, the economic and social benefits of those services are generally not valued by existing markets, and landowners who own forests or wetlands have little economic incentive to protect the ecosystems. An emerging tool to protect such valuable areas is called payment for environmental services, whereby beneficiaries of environmental services pay those who own and protect the ecosystems providing the services. In Costa Rica, for example, a water utility pays landholders in the upper watershed to protect the forested slopes that moderate run-off and limit erosion and sedimentation, thus protecting the quantity and quality of the water supply for downstream users.

36. The largest markets for environmental goods and services are the emissions markets based on cap and trade regulations on pollution emissions. Those trading systems, developed initially for lead in gasoline and sulfur dioxide from electricity generating plants, succeeded in making emission reductions more acceptable to industry, in reducing emissions faster than regulations required and in reducing the cost of achieving the overall reductions. As a result of that success, similar cap and trade systems were developed for greenhouse gas emissions under the Kyoto Protocol. While most markets for environmental services are national — or regional in the case of the European Trading System for greenhouse gases — the Kyoto Clean Development Mechanism represents the first global market for environmental services established by inter-governmental agreement. Such carbon markets, including international voluntary markets, will be considered in the next section on long-term sustainability.

Box 2
International payment for Iwokrama rainforest services

An agreement was announced in March 2008 to create a system for international payment for environmental services from the Iwokrama Rainforest Reserve in Guyana. The Iwokrama Reserve consists of a million acres of pristine rainforest that has been set aside for research, but financial support from donors has been declining. The area has rich biodiversity and the rainforest provides climate stability to tropical South America. The pioneering agreement is between the Iwokrama Reserve and Canopy Capital, of the United Kingdom of Great Britain and Northern Ireland, which is partly owned by the non-governmental organizations Global Canopy Programme as well as private investors. Canopy Capital will provide funding for management of the Reserve in return for a share of rights to ecosystem services with a view to prospective markets for credits for such services. With additional investments, the Reserve could be financially self-sustaining by 2010 on the basis of such payments. Guyana is also seeking funding for other parts of its rainforest.

37. International markets for other global environmental services, such as protection of forests and biodiversity, have not yet been developed on an inter-governmental basis, in part because of the difficulty of quantifying and commodifying the services. However, international voluntary carbon markets, while small compared to the Kyoto markets, do include protection of natural forests, thus supporting biodiversity conservation as well as mitigating climate change.

38. Markets have also been created for renewable energy credits. Some countries require electric power utilities to derive a specified proportion of their power from renewable energy sources, referred to as renewable portfolio standards. To provide flexibility, utilities can meet the requirements either by generating electricity themselves from renewable sources or by buying renewable energy credits from others. Any entrepreneur or landowner can therefore set up a wind turbine, solar energy generator, or other renewable energy source, use or sell the power, and sell the renewable energy credits to a utility, thus subsidizing the power. While new renewable energy systems in developing countries can qualify for Clean Development Mechanism credits provided that they require additional funding in order to be viable, such systems cannot be used to meet renewable energy requirements in developed countries. Creating an international market for renewable energy credits from developing countries for use in developed-country markets could help mobilize additional funding for renewable energy in developing countries, although arrangements would need to ensure that such markets did not simply duplicate the Clean Development Mechanism mechanism.

39. In some countries, utilities are required to offer consumers net metering, encouraging private investment in local small-scale renewable power generation by ensuring that consumers who invest in their own energy generating systems can buy power from the grid when they need more than they can generate, and sell power to

the grid when they generate more than they need. That is particularly important for solar and wind energy systems that generate power only intermittently.

Box 3
Promoting renewable energy in Germany

In Germany, electric utilities are required to purchase electricity from renewable power generators at favourable feed-in tariffs, encouraging private investment in renewable energy, either by industry or by households. As a result, renewable energy sources now provide 14 per cent of electricity generation (2007), surpassing the European goal of 12 per cent for 2012 and ahead of schedule on the goal of 20 per cent by 2020. Germany is now the world leader in wind energy generation, with more than one third of installed global capacity and a large share of the global market for generating equipment. Germany is also a leader in solar power, for both water heating and electricity generation.

40. Subsidies can be used to build markets for new sustainable technologies, both by internalizing the environmental and social benefits of the new technologies and by providing financial support for technologies that need further development and scaling-up to enable them to become more cost-competitive with conventional technologies. Sustainable technologies can also be supported by reducing subsidies for competing conventional technologies. Cost recovery by energy and water utilities, for example, provides incentives for improving energy and water efficiency and developing new, more efficient technologies, as well as providing revenues to supporting efficiency improvements and expansion of energy and water services to those currently without access.

41. Government and local authorities can also build or strengthen markets in support of sustainable development through public procurement policies. Many Governments have established policies requiring or favouring procurement of energy-efficient buildings, environmentally friendly vehicles and products, electricity from renewable sources, safe and environmentally friendly cleaning products and sustainably produced food. On the social side, public agencies can offer, and require that their contractors offer, good wages and working conditions and have non-discriminatory employment policies. They can also discriminate positively in favour of traditionally disadvantaged groups to promote social and economic equity. Such policies not only provide benefits from public activities, but also set an example for private procurement and stimulate markets that might otherwise be slow to develop.

42. Public pressure can also promote markets for sustainability, supporting Government efforts. In recent years, there has been a rapidly growing demand in some developed countries for energy-efficient buildings; high green ratings have become a prestige symbol for corporate headquarters. The Green Building Council in the United States of America has established a Leadership in Energy and Design (LEED) Green Building Rating System with guidelines and certification of buildings in silver, gold and platinum categories. LEED-certified buildings have

been built or are being built in 41 countries, including Brazil, China, Guatemala, India, Japan, Mexico and Sri Lanka, as well as the United States of America.

43. Insurance systems are another way of integrating risk, including environmental risk, into economic decision-making, giving an indication of which risks are worth taking and which are not. Drought can be a major setback to agricultural and rural development, not only reducing food supply and income, but also destroying longer-term assets such as livestock, and forcing families to use savings and sell land and other assets, pushing them into poverty, from which it is very hard to escape without assets. In recent years, pilot projects in a number of developing countries have shown that smallholders are prepared to buy drought insurance, and administrative systems have been developed that make it financially viable to make such insurance available commercially, and even to spread the risk through international reinsurance markets. A key step has been the development of rainfall or other weather monitoring systems that provide measurements that relate closely to crop losses but are simple, robust, inexpensive and trustworthy, and do not require assessment of each farm's losses. An example is a project in Ethiopia, supported by the World Food Programme, the World Bank and the United Kingdom of Great Britain and Northern Ireland, which has been demonstrated on a pilot basis and is now being expanded to cover 6.7 million people.

D. Ensuring long-term sustainability

44. Climate change poses a major sustainable development challenge, as it will affect agriculture, water resources, food security, coastal zone development, natural disasters and other aspects of sustainable development. While some impacts of climate change are already appearing, the major impacts are expected to occur over 50 to 100 years or more. Addressing those impacts will require efforts to mitigate climate change by reducing greenhouse gas emissions and also to adapt to the climate change that will occur. Mitigating climate change will involve substantial costs, including near-term costs, in return for benefits that are mostly long-term. Convincing people that substantial changes will be required in prices and consumption patterns in return for future benefits that they do not fully understand is a huge challenge. Furthermore, because the impacts are global rather than local, each individual, each community, and even each country, benefits very little from its own actions, but mostly from the actions of everyone else. As a result, that long-term global problem is not yet being effectively addressed. Very few countries are on track to meet even the very limited targets of the Kyoto Protocol, much less the large reductions in greenhouse gas emissions required to effectively stabilize the global climate in the long term. Substantial use of the flexibility mechanisms of the Kyoto Protocol, including the Clean Development Mechanism, will be needed for the developed-country parties to meet their 2008-2012 Kyoto obligations, but they are not sufficient to meet the long-term need for climate stabilization.

45. It has been estimated that reducing greenhouse gas emissions to three quarters of current levels by 2050, thereby stabilizing atmospheric greenhouse gas concentration at about double the pre-industrial level, could cost on the order of 1 per cent of global GDP per year, or about $500 billion per year. The estimate depends on which policies are used, when they are introduced, and the extent to which costs of alternative energy technologies decline. Conceivably, the costs could be several times as high, or they could be lower, if energy efficiency and

conservation pay for themselves through energy savings. If greater levels of emission reductions are required, as some climate experts believe, the costs could be substantially greater.

46. Reducing greenhouse gas emissions will require new technologies for energy efficiency, together with regulatory standards or incentives for the adoption of those technologies. Such standards or incentives in developed countries can constitute an obstacle to exports from developing countries. Technical and financial assistance will be needed for developing countries to improve manufacturing capabilities to meet the new, stricter requirements of developed country markets to mitigate climate change.

47. Adaptation will also be expensive, but the costs are harder to estimate, and will be more closely tied to the benefits across both space and time. Adaptation costs are expected to start at a lower level in the short to medium term, then rise rapidly in the long term as climate change and its impacts increase. For modest impacts, many adaptations, such as changing agricultural practices to adapt to higher temperatures and reduced water supplies, and building sea walls to protect coastal areas against rising sea levels, will be cost-effective, but that may not be true for larger impacts.

48. The Kyoto Clean Development Mechanism provides an innovative way to reduce the cost of meeting the Kyoto obligations in developed countries and supporting developing countries in climate change mitigation. Developed countries have greater historical responsibility for greenhouse gas emissions and for the resulting climate change, and can afford the long-term research and development required to address climate change and its impacts. In 2006, $4.8 billion was transferred to developing countries through the Clean Development Mechanism to help reduce greenhouse gas emissions.

49. While most global greenhouse gas emissions come from fossil fuels, about 18 per cent derive from clearing tropical forests for conversion into cropland, pasture or tree plantations, and other land-use change. While some studies indicate that such projects could be very cost-effective for reducing greenhouse gas emissions, they are currently not eligible for funding through the Clean Development Mechanism. In the context of discussions about a post-2012 climate change regime, a mechanism for promoting and supporting programmes for reducing emissions from deforestation in developing countries is being considered. Agreement on such a mechanism could provide valuable additional financial support for sustainable development in developing countries as well as for climate change mitigation.

50. In addition to the greenhouse gas markets under the Kyoto Protocol, there are also voluntary markets for businesses, organizations or individuals willing to pay for greenhouse gas emission reductions, generally as offsets to their own emissions, either as a contribution to the public interest or as an indication of corporate responsibility. The Chicago Climate Exchange is an example of a voluntary market for carbon emissions, as are enterprises that offer carbon offsets for air travel, automobile use or other energy-consuming activities. Standards and certification schemes are being developed to ensure that the offsets of such programmes are real. Governments can recognize and encourage such voluntary markets as contributing to official climate change objectives. Effective voluntary programmes can provide a basis for the development of regulatory markets or other mandatory environmental

protection measures, and can provide markets for emission reduction projects not covered by existing regulatory markets, such as forest protection.

51. The effective action taken under the Montreal Protocol on the protection of the ozone layer to reduce emissions of ozone-depleting substances shows that if the benefits are substantial and the costs of action modest, the international community, with the developed countries taking the lead, can take collective action to address long-term global problems.

52. Protection of biodiversity is another problem requiring current action for long-term benefits. Like climate change, biodiversity is a long-term global issue that is not being effectively addressed by current mechanisms. Biodiversity is both a national and global resource, but the benefits of conserving biodiversity are not widely and clearly comprehended. Protection of biodiversity generally involves protection of natural forests and unusual and isolated ecosystems with unique species. Protection of such ecosystems, combined with studies that identify endangered species and the ecosystems they depend on, have had some effectiveness in protecting biodiversity in some countries. However, assessments indicate that the number of endangered species is increasing and populations of endangered species are declining. There is a need to raise awareness and to increase international programmes to promote financial and technical assistance for biodiversity protection.

53. Protected areas have been steadily increasing and expanding in recent years, covering a total of about 20 million square kilometres by 2006. There are concerns, however, that many of the areas may not be adequately managed and protected. There is a particular need to expand protected marine areas in order to reverse the loss of marine resources and collapse of fisheries.

54. Bringing together financing from public and private sources can help expand protected areas and ensure long-term protection of biodiversity. In many ecosystems, protecting biodiversity is compatible with some economic activities, such as sustainable forestry or tourism. In such cases, Government, local communities, business and conservation organizations can work together to allow limited commercial activities while permanently excluding unsustainable activities. In some countries, conservation organizations have purchased permanent development rights to land of particular importance for biodiversity, while leaving ownership and limited commercial use with business, thus making effective use of the limited resources of the private conservation organizations and providing capital to sustainable businesses. Governments can promote such partnerships through regulations and tax incentives, or even provide supportive or catalytic funding.

55. The tourist attractions in many areas of rich biodiversity provide an economic incentive and, in some cases, a financial mechanism for protecting biodiversity. Rainforests, mountains, coral reefs and other ecosystems attract tourists, and tourist fees and other tourism-related revenues can be used to protect and manage the ecosystem and expand the protected area. Costa Rica, with collaboration among Government agencies, communities and tourism businesses, has used tourist fees to protect cloud forest ecosystems and support local communities through such projects as school construction. Ecuador has used tourist fees to protect and manage the unique flora and fauna of the Galapagos Islands. Nepal has adopted a policy of high-end tourism, with limited numbers of mountain trekkers and strict rules to prevent litter and pollution in the pristine mountain ecosystems.

56. Fisheries are another example of a problem in which substantial short-term economic and social costs are required to protect long-term benefits. Many commercial marine fish stocks are depleted or have collapsed, and little effective action has been taken, nationally or internationally, to allow the stocks to recover. Some efforts have been made to reduce fishing capacity or limit the fishing season or catch in some fisheries, but there has also been an increase in illegal, unreported and unregulated fishing. Subsidies for fishing in some developed countries are still supporting excess fishing capacity. Further efforts are needed to reduce fishing fleets, eliminate subsidies that promote excess fishing, reduce fishing seasons and quotas for overfished species, restrict destructive fishing practices, establish more marine protected areas for threatened ecosystems and fish spawning grounds, and take effective international action against illegal, unreported and unregulated fishing. Further research is needed on the population dynamics of depleted or threatened species, the ecosystems that support them, and the most cost-effective ways to promote their recovery. Research is also needed to determine the optimum sustainable yield of fisheries that are still viable and the best fishing regulations to maximize sustainable harvest and reproduction rates.

57. Desertification remains a major challenge to sustainable development, with an estimated 20,000 to 50,000 square kilometres of productive land lost every year, mostly to soil erosion caused by unsustainable land management practices, exacerbated by deforestation, overuse of water resources and climate change. Land degradation reduces agricultural production, increases poverty and migration, increases airborne dust and water sedimentation, reduces biodiversity and releases CO_2, contributing to climate change. In some areas, progress has been made in combating desertification through improved livestock management, water conservation, cultivation techniques suited to drylands, community programmes supported by extension services, improved access to inputs and produce markets and more secure tenure rights. However, there is a need for greater global and regional cooperation, with financial and technical support, to combat desertification.

IV. Global partnership for development

58. Supporting sustainable development in all countries will require a broad global partnership for financial investment, trade, and technology development and transfer, including international cooperation among Governments, business, non-governmental organizations and research institutes and foundations, with the support of the United Nations and other international organizations.

A. Finance

59. Economic growth is both a central element of sustainable development and a source of finance for investment. In recent years, developing countries have seen economic growth averaging 6 per cent, as have the economies in transition, with the least developed countries growing at 7 to 8 per cent, thereby expanding employment, reducing poverty, increasing public revenues and improving social services. Economic growth in the developed countries has averaged 2 to 3 per cent.

60. Global economic growth is expected to be somewhat lower in 2008. The current financial turmoil and likely recession in the United States of America may

cause a slowdown in other countries as well. Reduced demand could slow or reverse the increases in recent years in prices of many natural resources, thereby reducing economic growth in resource-exporting countries, while reducing costs for countries dependent on imported commodities or other natural resources.

61. Increased and more effective development assistance is an essential component of the global partnership. There has been some increase in official development assistance (ODA) in recent years, to $104 billion in 2006, but much of the increase has been in the form of debt relief and emergency assistance rather than assistance for investment, technology transfer and capacity-building. From 2006 to 2007, ODA from Development Assistance Committee member countries declined by 8.4 per cent in real terms, representing 0.28 percent of gross national income from 0.31 in 2006. Bilateral aid to sub-Saharan Africa, excluding debt relief, increased by 10 per cent in real terms. Most donor countries have increased the share of their gross national income going to ODA since 2000, but there are still only five countries that meet the target of 0.7 percent of gross national income. The European Union provided 0.40 per cent of gross national income as ODA in 2007, and has pledged to reach the collective goal of 0.7 per cent by 2015. Overall, most donors are not on track to meet their commitments to increase aid.

62. Net foreign direct investment (FDI) from developed to developing countries has continued at a level of close to $200 billion per year, supporting development in recipient countries though technology transfer and access to international markets as well as investment. FDI, however, remains concentrated in a limited number of middle-income countries. Other financial flows, including both private and official flows, have been net outward flows from developing countries in recent years, leaving net inward financial flows of about $100 billion in 2007, with, in addition, a very large outflow of official finance ($150 billion) from West Asia. As a result of the capital inflows and the large and growing trade surplus of the developing countries ($600 billion), particularly of the oil-exporting countries, developing countries have been accumulating large official reserves, amounting to over $3 trillion in 2007, providing protection from external financial shocks. Private financial flows to developing countries, and in particular FDI, have been encouraged in recent years by high economic growth in most developing countries and by greater macroeconomic and political stability and greater openness to trade and investment.

63. Payments for intellectual property rights represent significant international financial flows, including payments for licensing new technologies, as well as transfers within multinationals, and payments for computer software and copyrights. Patent rights also lead to high prices for many pharmaceutical products. Developing countries made net payments to developed countries of about $13 billion in royalties and licensing fees for intellectual property rights in 2005, about 10 per cent of global payments. The current intellectual property right regimes need to be reviewed to make them more pro-development.

64. The Global Environment Facility is an important source of international funding for sustainable development assistance in the areas of biodiversity, climate change, international waters, land degradation, ozone depletion and persistent organic pollutants. Since it was established in 1991, the Facility has provided $7.4 billion in grants to support some 2,000 projects in 160 developing countries and countries with

economies in transition. In 2006, 32 donor countries pledged $3.13 billion for the period 2006-2010 in the fourth Global Environment Facility replenishment.

65. The Clean Development Mechanism under the Kyoto Protocol provides financial and technical support to developing countries for reducing greenhouse gas emissions, improving energy efficiency and developing renewable energy sources, with credit for the reductions going to the financing country towards meeting its Kyoto obligations. To date, it is the only intergovernmental mechanism that provides financial and technical assistance to developing countries through a market that is independent of ODA. About $2.6 billion was spent on Clean Development Mechanism credits in 2005 and $4.8 billion in 2006, and the amount is expected to grow substantially through the end of the current Kyoto obligations in 2012. To date, most of the projects have been in Brazil, China and India, in part because the costs of project approval for Clean Development Mechanism are high, so only large projects are viable. Changes have been made recently to Clean Development Mechanism procedures to allow approval of programmes that include a number of similar projects, improving opportunities for smaller projects. In post-2012 arrangements, procedures should be further improved to enable more countries to participate with more projects, thereby increasing financial assistance and transfer of technology to developing countries. The Clean Development Mechanism currently does not include projects that prevent deforestation or projects for adapting to the impacts of climate change. New mechanisms are under discussion to cover such projects as part of the post-2012 arrangements.

66. Many multilateral and bilateral development assistance and finance programmes have recently developed specific funds for climate- and energy-related activities. While the proliferation of funds and programmes presumably provides greater expertise for finance and technology transfer in that area, it is not clear that it offers additional finance, and it might complicate the efforts of developing countries to decide their own development priorities and obtain international financial assistance.

67. For the private sector in developing countries, limited access to credit can be an obstacle to investment in cleaner, more resource-efficient production in existing enterprises and to the establishment of new enterprises contributing to sustainable development. Access to credit is a particular problem for small enterprises offering new goods or services in developing countries. Microcredit and microfinance, as pioneered by the Grameen Bank in Bangladesh, have emerged as new tools for promoting small-scale entrepreneurial activity. Microcredit has been particularly important in improving access to credit for women, who often have limited assets to use as collateral. There has also been some development of venture capital investment for small start-up enterprises in developing countries, both from domestic sources and from developed-country venture capital firms, encouraged by high growth rates, macroeconomic stability and greater openness to investment capital. In the area of private bank lending in developing countries, over 60 major private banks have adopted the Equator Principles, launched in 2003, committing themselves to financing only projects that meet basic environmental and social standards. Projects are to have social and environmental assessments and, where necessary, social and environmental management systems to mitigate, manage and monitor the impacts and risks. In January 2008, the China State Environmental Protection Administration decided to introduce the Equator Principles in China as part of its efforts to ensure

that domestic bank lending would support sustainable development, reduce financial risk and prevent highly polluting projects from being financed.

B. Trade

68. International trade has been growing faster than economic growth for many years, and the share of developing countries in global trade has been increasing, from 29 per cent of merchandise trade in 1996 to 36 per cent in 2006, driven largely by China's export growth. Total developing-country merchandise exports in 2006 amounted to $4.27 trillion, and commercial service exports were $270 billion. Trade among developing countries (South-South trade) has also been increasing rapidly, but, at about 6 per cent of global trade, remains substantially smaller than North-South trade. Such trade growth has been a driver for economic development in many countries, allowing developing countries access to international markets, increasing economies of scale, and encouraging imports of modern, more productive production equipment. Much of the growth in trade has been in trade of materials and components within multinational enterprises and supply chains as part of the globalization of production. The increasing globalization of trade has been accompanied by transfer of production technology and management systems.

69. While trade has been growing and barriers to trade have been reduced through multilateral, regional and bilateral trade agreements, there remain substantial barriers to trade. In particular, barriers in developed countries to agricultural imports are a significant restriction on the exports of some developing countries, limiting their development opportunities. The Doha round of multilateral trade negotiations needs to be given new impetus.

70. There are still untapped opportunities for export development within existing trade arrangements. For many countries, particularly for Africa and the least developed countries, the barriers to exports are internal as well as external, including low productivity, inadequate transportation and communication infrastructure, unreliable power, lack of trained and skilled workers, and quality and reliability below international standards. International assistance, such as the Aid for Trade Initiative under the World Trade Organization, can help those countries develop their export capacity.

C. Technology transfer and capacity development

71. Technology development, in particular when driven by environmental regulations and incentives, generally tends to cleaner, more resource-efficient and more productive technologies. One means for transferring modern production systems and technologies to developing countries without a long learning process is through international supply-chain management. With the globalization of production and consumption and the development of global supply chains, multinational corporations are moving production to developing countries, along with production technologies and management techniques from developed countries. Furthermore, consumer and public demand in developed countries is increasingly holding multinational companies responsible for the behaviour of their suppliers with respect to social and environmental standards. As a result, multinationals are increasingly training suppliers in cleaner production, quality control and modern

management techniques, and they are monitoring working conditions. While supply chain management by multinational enterprises often only reaches the primary suppliers of the enterprise concerned, the Republic of Korea has developed a programme for helping a wide range of enterprises to meet the requirements of international markets through cleaner, more efficient, high-quality production.

72. Most development assistance projects include some component of technology transfer and capacity-building. However, ODA-funded projects, whether bilateral or multilateral, rarely involve patented industrial products or processes, in large part because ODA-funded projects rarely involve industrial production. The World Bank's International Finance Corporation lends to projects in the private sector, but does so on a commercial basis and its activities would not appear to involve technology transfer more than other bank lending.

73. One of the best examples of policy-driven technology development and transfer for sustainable development was the "green revolution" in agriculture, led by public sector and non-profit institutions. The development of new high-yielding varieties of wheat, rice and corn, together with existing fertilizers, irrigation technology and pesticides, resulted in a doubling of grain production in Asia (1970-1995), almost entirely from increased yields, as the land area devoted to grain increased by only 4 per cent. Not only did that increase national food supplies, but poor people benefited from cheaper food, increased demand for rural labour and higher incomes.

74. That green revolution, however, bypassed Africa, where the agricultural conditions and infrastructure were not suited to the technology. Increasing agricultural production in Africa requires the development of irrigation systems and dissemination of irrigation technologies, increased investment in rural roads and supply systems for agriculture, research to improve crop varieties and cultivation practices suitable to African conditions, and greater efforts to disseminate available improved varieties and practices. A programme for a green revolution in Africa has been launched, and the Alliance for a Green Revolution in Africa is providing support to develop improved crop varieties, train scientists, ensure that improved seeds reach smallholder farmers and develop a network of dealers to facilitate access of small-scale farmers to agricultural inputs.

75. There is a need for greater efforts at the international level to promote transfer of technology from developed to developing countries on a concessional and preferential basis, including in the context of current intellectual property practices and legal instruments. Particular priorities for such efforts should be energy and resource-efficient industrial technologies and renewable energy systems.

76. Capacity development for both the public and private sectors in developing countries is also critical for sustainable development and is a major component of most development assistance activities. In recent years, a greater share of ODA programmes and projects have focused on capacity development, particularly as privatization of what were formerly Government services, such as communications and power, has reduced ODA to those areas. In those cases, ODA has been replaced by Foreign Direct Investment or other private investment.

77. Capacity development will be particularly important in adapting to climate change, as the impacts of climate change will vary greatly from country to country depending on existing climate, changes in rainfall patterns, agricultural systems,

extent of low coastal plains and extent of temperature-sensitive ecosystems. It is essential, therefore, that all countries have the capacity, as part of their national sustainable development strategies, to plan for adaptation to climate change, with financial and technical assistance for developing countries. There is also a need for further research, through international cooperation, on climate change modelling at the national and local levels, adaptive agricultural techniques and civil engineering techniques to adapt to a rise in sea level and increased storm impacts.

78. Liberalizing trade in environmental goods and services through the multilateral trade negotiations on the issue under the Doha round could also contribute to the transfer of environmentally sound technologies.

V. Recommendations

79. **There is a need for a renewed international commitment to sustainable development in all countries, integrating economic growth, social development and protection of the environment, on the basis of national action and international cooperation, with expanded financial and technical assistance for developing countries. A renewed commitment is also needed to the achievement in all countries of the Millennium Development Goals as a basic first step towards a good quality of life for all. There is a particular need to address critical issues of long-term global sustainability in which the situation continues to deteriorate, including climate change, deforestation, biodiversity and desertification. Sustainable development requires cooperation based on social solidarity at the local, national and international levels.**

80. **Based on the above, the following actions are recommended as priorities for national action and international cooperation for sustainable development:**

(a) **Policies, programmes, partnerships and experiences that have effectively contributed to progress towards sustainable development should be assessed, reported, publicized and replicated in other countries, adapted as necessary to local conditions;**

(b) **Countries that have not yet developed policy frameworks for integrating economic, social and environmental objectives should consider undertaking such a process through consultations involving Government agencies, local authorities and representatives of civil society and the private sector;**

(c) **Countries that have developed such frameworks or strategies should undertake periodic reviews, with a multi-stakeholder approach, to update the strategies in the light of achievements, obstacles and experiences;**

(d) **Regional networks of experts may be established for identifying and promoting integrated and cost-effective approaches to sustainable development based on shared experiences;**

(e) **The post-2012 negotiating process offers the opportunity to address climate change more effectively, with all developed countries taking the lead, to substantially reduce greenhouse gas emissions, to develop adaptation strategies and to increase financial and technological support to developing countries. All**

countries will need to demonstrate a commitment to contributing to the effort in accordance with their economic and technological capacities;

(f) An enabling environment for international carbon markets is needed to allow them to function properly and in cost-effective ways, ensuring that they work for the benefit of all countries;

(g) Efforts should be continued to improve and expand the Clean Development Mechanism, facilitating access for all countries and for small-scale mitigation efforts, while ensuring that approved projects provide real emission reductions. Efforts should also be made to develop mechanisms to promote international financing for additional types of climate change mitigation and adaption projects, including reducing deforestation;

(h) Further measures should be considered towards internalizing the environmental and social costs of less sustainable activities, as a way of integrating those factors into all economic decision-making;

(i) The public sector should play a leading role in promoting energy efficiency and renewable energy, including through Government activities, public procurement and contracting;

(j) A green revolution for Africa should be a priority for international assistance, with a focus on smallholder production. Technical and financial assistance should be provided for expanding and improving irrigation systems, developing crop varieties that are more productive under African conditions, improving supply systems for other inputs, improving transportation and communication infrastructure and markets, and expanding access to credit;

(k) Consideration should be given to developing new international market-based mechanisms and incentives for protecting biodiversity in developing countries, including mobilization of international financial support and technical assistance;

(l) National and international efforts should be undertaken to expand protected areas of biodiversity, particularly marine areas. Where appropriate, limited and regulated economic activities, including activities of indigenous and other local communities, should be allowed in order to help finance and manage the protected areas;

(m) Strengthened financial and technical assistance is needed for combating desertification, particularly in the light of climate change, which is projected to increase the risk of drought in many developing countries;

(n) A systematic review of the adequacy of existing financing mechanisms for sustainable development should be undertaken;

(o) Increased financial resources, particularly ODA, should be mobilized to meet the priority objectives of sustainable development. While strong domestic policies and domestic and foreign private investment provide the foundation for sustainable development, critical problems such as climate change, biodiversity protection, tropical forest conservation and marine resource protection cannot be resolved by domestic and private action alone;

(p) As trade is an important driver of sustainable development, there is a particular need for improved trade opportunities for developing countries in

support of sustainable development, both through the Doha development round of multilateral trade negotiations and through aid for trade assistance;

(q) Assistance should be provided for strengthening administrative and monitoring capacities of the public sector in developing countries, particularly with respect to integrating the three components of sustainable development;

(r) High priority should be given to international efforts to resolve civil conflicts, rebuilding peace, effective governance and social cohesion in countries that have had civil conflicts, and work to assist States in preventing conflicts, including through participatory strategies for sustainable development.